

Date: Friday, 2/23/2007 1:47:24 PM
 User: Kim Johnston

Process Sheet

Customer	: CU-DAR001 Dart Helicopters Services	Drawing Name	: FWD TUBE ASSEMBLY
Job Number	: 30924		
Estimate Number	: 10467		
P.O. Number	: <i>N/A</i>	Part Number	: D3391021
This Issue	: 2/23/2007 S.O. No. : <i>N/A</i>	Drawing Number	: D3391 UNDER REVIEW <i>OK 07.02.06</i>
Prsht Rev.	: NC	Project Number	: N/A
First Issue	: <i>N/A</i> Type : MACHINED PARTS	Drawing Revision	: <i>2 F</i>
Previous Run	: 30923	Material	: <i>N/A</i>
Written By	:	Due Date	: 3/21/2007 Qty: 1 Um: Each
Checked & Approved By	: <i>07.02.06</i>		
Comment	: Est. A 05.09.13 New issue KJ/JLM		
	: Est. B 06.02.10 Dwg rev.D ecn 773 EC		
	: Est. C 06.05.02 Added inspections EC		

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
---------	-----------------------	---------------

1.0	D6013047	SKIDTUBE MAT'L
-----	----------	----------------



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

SKIDTUBE MAT'L

Pick:

Qty	Part Number	Description	Batch
1	D6013-047	Extrusion	<i>B 26547</i>

5b 7-3-22

2.0	LANDING GEAR 1	LANDING GEAR RESOURCE 1
-----	----------------	-------------------------



Comment: LANDING GEAR RESOURCE 1
 Cut extrusion to 46.52 +0.010 -0.020

5b 7-3-8

3.0	BENDING	BENDING MACHINE
-----	---------	-----------------



Comment: No bender
 Bend as per Dwg D3391 Using Bend Prog 3391021

EL 7-3-28

4.0	QC5	INSPECT WORK TO CURRENT STEP
-----	-----	------------------------------



Comment: INSPECT WORK TO CURRENT STEP

DP 7-3-29

5.0	HAAS1	HAAS CNC VERTICAL MACHINING #1
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Comment: HAAS CNC VERTICAL MACHINING #1

1-Machine as per Folio FA590 Rev. *AA* & Dwg D3391 Rev. *E*
 Identify as D3391-1

2-Deburr

36 07.04.02 (U)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Friday, 2/23/2007 1:47:24 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: FWD TUBE ASSEMBLY

Job Number: 30924

Part Number: D3391021

Job Number:



Seq. #:

Machine Or Operation:

Description :

6.0

QC2

INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

36 07-04-02 (1)

7.0

QC8

SECOND CHECK



Comment: SECOND CHECK

mk 07/04/02 (1)

8.0

LANDING GEAR 1

LANDING GEAR RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Drill and c'sink float bag holes as per Dwg D3391 using DT8798(Do not open tow cap holes to finish size)
(ONLY DRILL HOLES MARKED "A")

2-Drill Remaining two holes for tow cap using DT 8819 Locating off of .1875" holes drilled in previous step

3-Open tow cap holes to .208" as per Dwg D3391

4-Open Tow Ring hole to .640" as per Dwg D3391

5-Drill wearplate holes as per Dwg D3391 Using Dt8217 & DT8878

6--Deburr

DD
7-4-4

9.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

0704-20 (1)

10.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Acid etch and Alodine as per QSI 005 4.1

M-L

07/04/23

(1)

11.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

0704-23 (1)

12.0

POWDER COATING

POWDER COATING



Comment: POWDER COATING

Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3

HL

07-04-24 (1)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Friday, 2/23/2007 1:47:25 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: FWD TUBE ASSEMBLY

Job Number: 30924

Part Number: D3391021

Job Number:



Seq. #:

Machine Or Operation:

Description :

13.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

m-r 07/05/30 ①

14.0

NAS1330C3KB166

INSERT



Comment: Qty.: 14.0000 Each(s)/Unit Total : 14.0000 Each(s)
Rivnut 20.

Pick:

Qty Part Number Description Batch
14 NAS1330C3KB166 Insert

per blue file Rev. F.

M102849

① PTO

15.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1
Install Inserts as per Dwg

m-r 07/05/30 ①

16.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

2405-300

17.0

D3401041

Tow Cap Assembly



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)
Tow Cap Assembly

Pick:

Qty Part Number Description Batch
1 D3401-041 Tow Cap

331346

18.0

AN3C4A

BOLT



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)
Bolt
Pick:

Qty Part Number Description Batch
4 AN3C4A Bolt

M104291

19.0

NAS1515H3L

WASHER



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)
Washer

Pick:

Qty Part Number Description Batch

m-r
~~*M10364*~~

07/05/31

W/O:		WORK ORDER CHANGES						
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector	
07-05-30	140	²⁰ 10 inserts required per Rev. F. update qty, perm. change						
		D356413 wear shoe 1331347 D356613 Gasket 1331349	Quantity 1 Perm. chg Quantity 1 perm. chg	07-05-30				

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes ☒ No ☐ DQA: Date: 07/06/12

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Friday, 2/23/2007 1:47:25 PM
User: Kim Johnston

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: FWD TUBE ASSEMBLY

Job Number: 30924

Part Number: D3391021

Job Number:



Seq. #:

Machine Or Operation:

Description:

4

NAS1515H3L

Washer

M102535

20.0

AN960C10L

washer



Comment: Qty.: 4.0000 Each(s)/Unit Total: 4.0000 Each(s)
washer

M104215

21.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



①

Comment: SMALL & MEDIUM FAB RESOURCE 1
Install tow Cap as per Dwg D3391
Identify as D3391-021

M-L

07/05/31

22.0

QC5

INSPECT WORK TO CURRENT STEP



2006-11 @

Comment: INSPECT WORK TO CURRENT STEP
Inspect thread of each insert using DT8821

23.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1
Identify and Stock
Location: PPA B32794

24.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

① 07/06/12

Job Completion



W 07-06-12

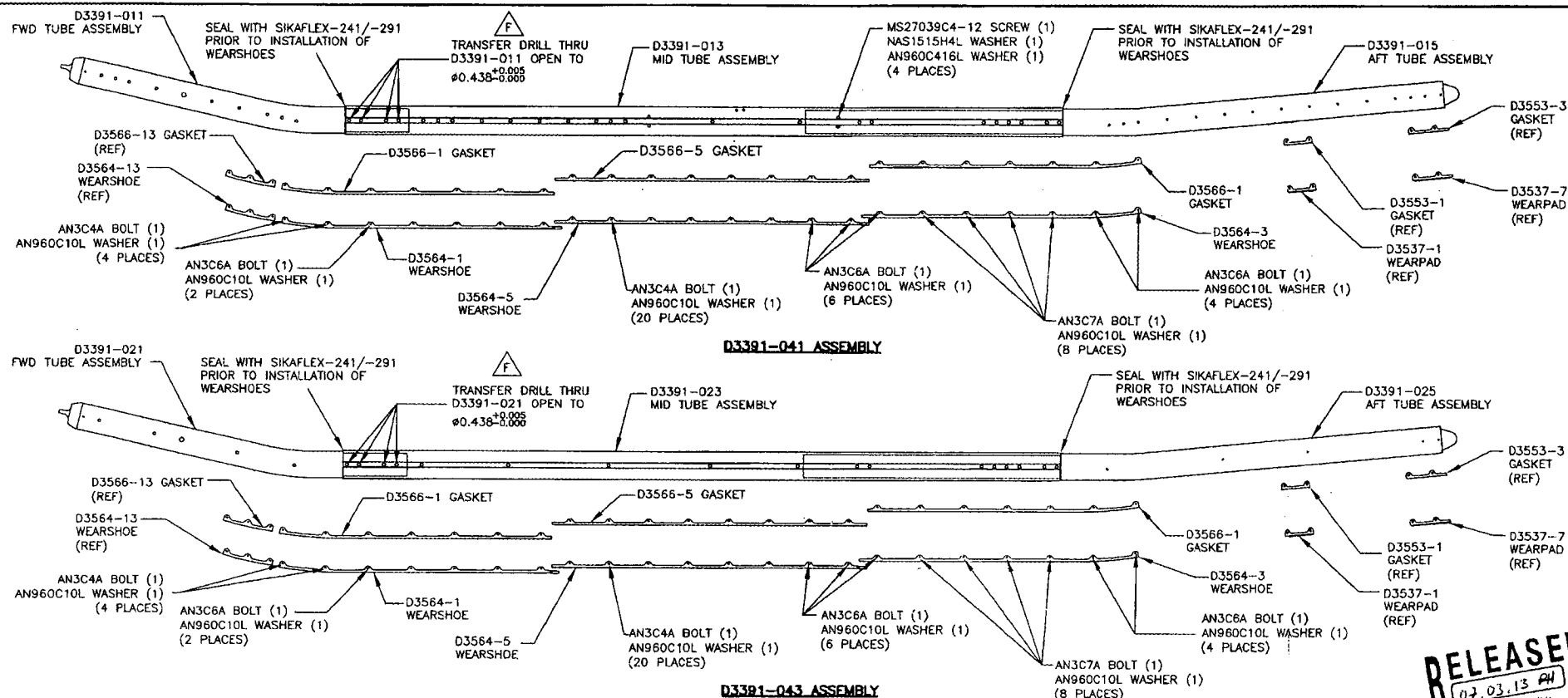
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



D3391-041/-043 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

QTY	QTY	PART NUMBER	DESCRIPTION
041	043		
X	X	D3391-041	FLOAT SKIDTUBE ASSEMBLY
		D3391-043	FLOAT SKIDTUBE ASSEMBLY
1		D3391-011	FWD TUBE ASSEMBLY
1		D3391-013	MID TUBE ASSEMBLY
1		D3391-015	AFT TUBE ASSEMBLY
1	1	D3391-021	FWD TUBE ASSEMBLY
1	1	D3391-023	MID TUBE ASSEMBLY
1	1	D3391-025	AFT TUBE ASSEMBLY
1	1	D3564-1	WEARSHOE
1	1	D3564-3	WEARSHOE
1	1	D3564-5	WEARSHOE
2	2	D3566-1	GASKET
1	1	D3566-5	GASKET
24	24	AN3C4A	BOLT
12	12	AN3C6A	BOLT
8	8	AN3C7A	BOLT
44	44	AN960C10L	WASHER
4	4	MS27039C4-12	SCREW
4	4	NAS1515H4L	WASHER
4	4	AN960C416L	WASHER

GENERAL NOTES

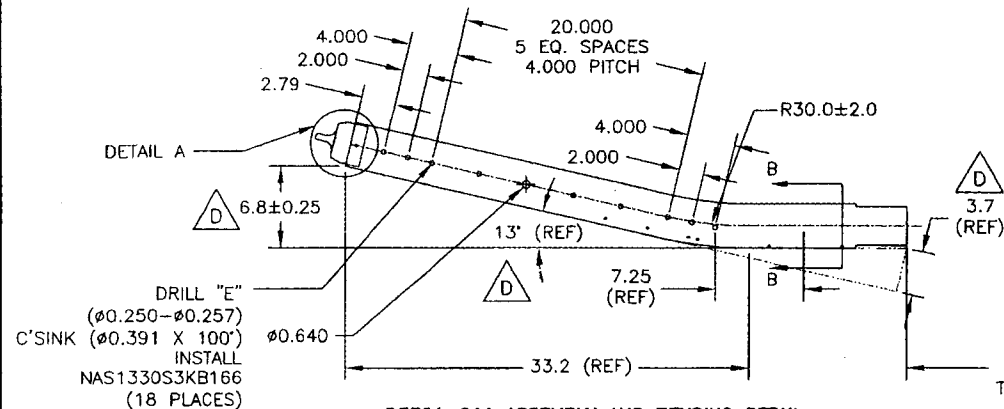
- 1) ALL DIMENSIONS ARE IN INCHES
- 2) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 3) FINISH: ACID ETCH AND ALODINE PER DART QSI 005 4.1
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 4) SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
- 5) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL 'E' SIZE HOLES (#0.250-#0.257) FOR WEARSHOE INSERTS. C'SINK #0.391/#0.425 x 100" AS APPLICABLE AND INSTALL INSERTS EXCEPT WHERE INDICATED.

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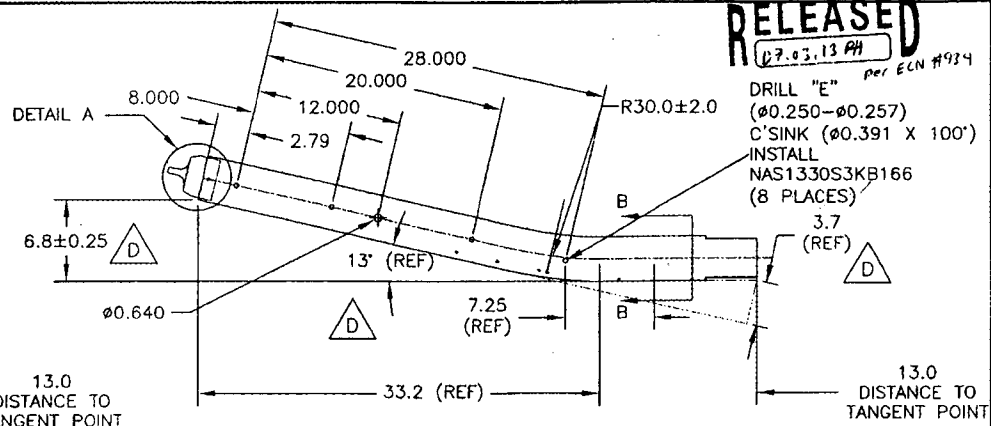
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F	07.01.18	ADD SS WEARSHOE, GASKET REMOVE FWD SADDLE HOLE -011/-021
E	06.04.25	CHANGE TOLERANCE, EASE MANUFACTURE
D	06.01.23	UPDATE TOLERANCE, CHANGE HOLE SIZE
C	05.09.27	LENGTHEN AFT EXTENSION
B	05.06.10	DRAWING UPDATES
A	05.02.07	NEW ISSUE
DESIGN	DRAWN BY	DART DART AEROSPACE USA, INC. PORT HADLOCK, WA
CHECKED	APPROVED	DRAWING NO. D3391
DATE	TITLE	REV. F SHEET 1 OF 5 SCALE NTS
07.01.18	412 FLOAT SKIDTUBE	

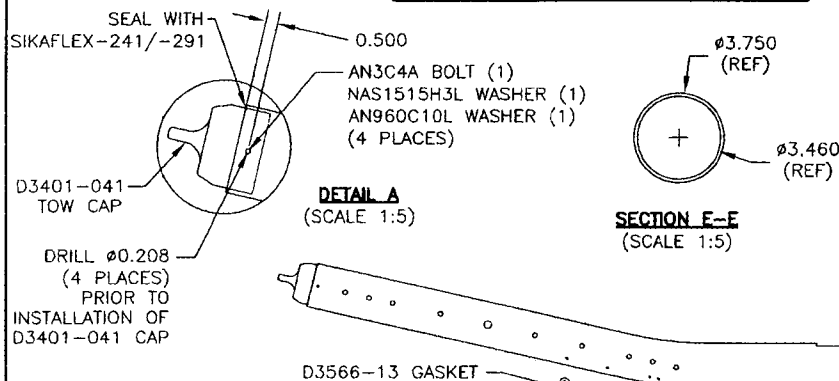
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07.03.13 PH per ECN #934



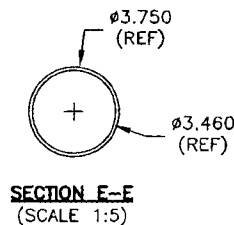
D3391-011 ASSEMBLY AND BENDING DETAIL



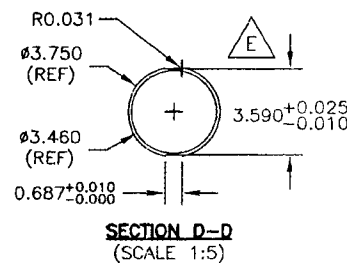
D3391-021 ASSEMBLY AND BENDING DETAIL



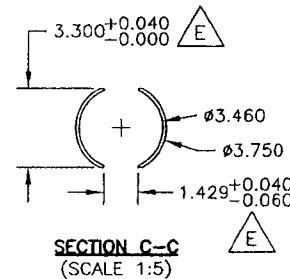
DETAIL A
(SCALE 1:5)



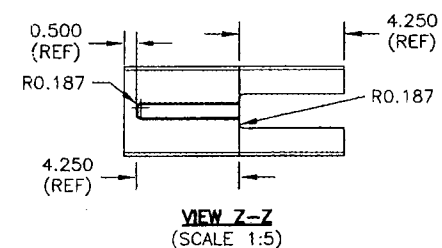
SECTION E-E
(SCALE 1:5)



SECTION D-D
(SCALE 1:5)



SECTION C-C
(SCALE 1:5)



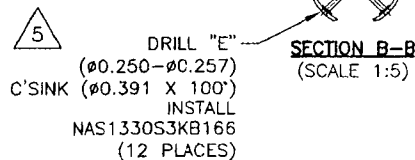
VIEW Z-Z
(SCALE 1:5)

D3391-011/-021 WEARSHOE ASSEMBLY

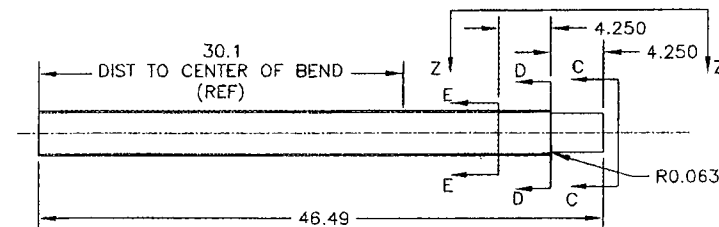


D3391-011/-021 FWD TUBE ASSEMBLY PARTS LIST

QTY - 011	QTY - 021	PART NUMBER	DESCRIPTION
X	X	D3391-011	FWD TUBE ASSEMBLY
		D3391-021	FWD TUBE ASSEMBLY
1	1	D6013-047	FWD TUBE
1	1	D3401-041	TOW CAP
1	1	D3564-13	WEARSHOE
1	1	D3566-13	GASKET
10	10	AN3C4A	BOLT
4	4	NAS1515H3L	WASHER
10	10	AN960C10L	WASHER
30	20	NAS1330S3KB166	INSERT (OR NAS1330C3KB166)

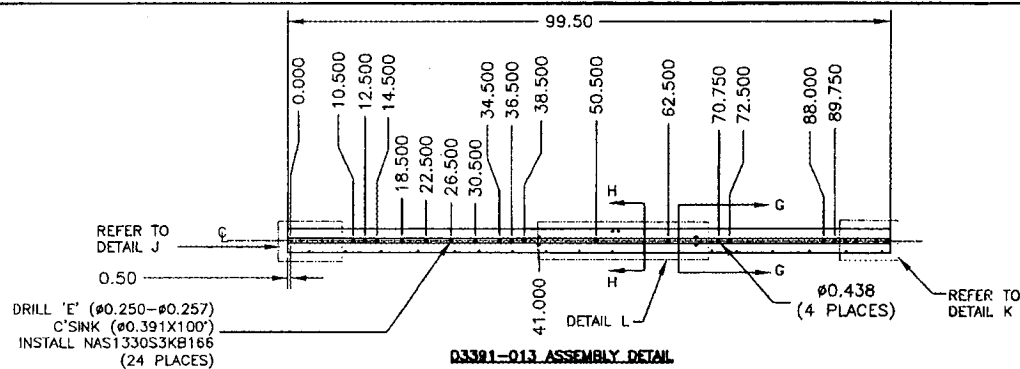


SECTION B-B
(SCALE 1:5)

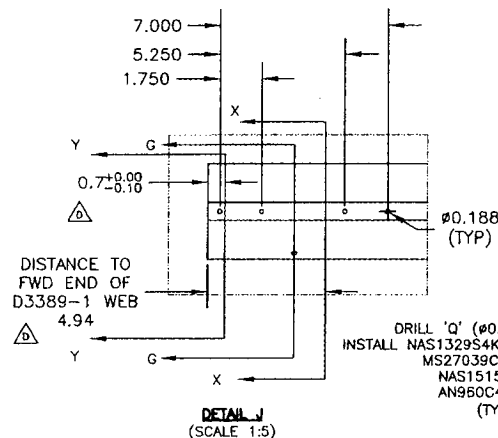


D3391-1 DRILLING AND CUTTING DETAIL
(MAKE FROM D6013-047 SKIDTUBE MATERIAL)

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DATE 07.01.18		TITLE 412 FLOAT SKIDTUBE		REV. F SHEET 2 OF 5 SCALE 1:10

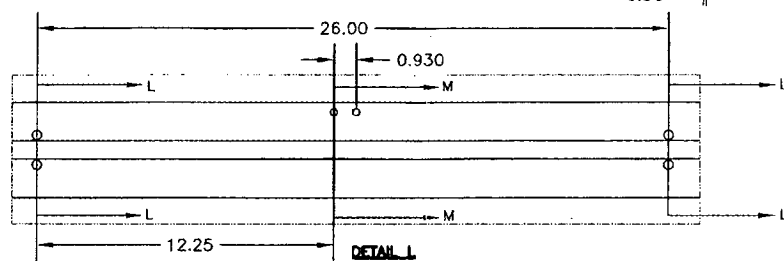


D3391-013 ASSEMBLY DETAIL

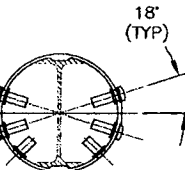


DETAIL J (SCALE 1:5)

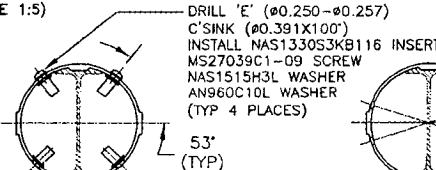
DRILL 'Q' (#0.332-#0.338)
INSTALL NAS1329S4KB140 INSERT
MS27039C4-08 SCREW
NAS1515H4L WASHER
AN960C416L WASHER
(TYP 4 PLACES)



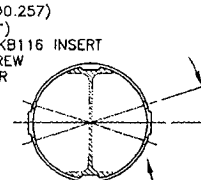
DETAIL L (SCALE 1:5)



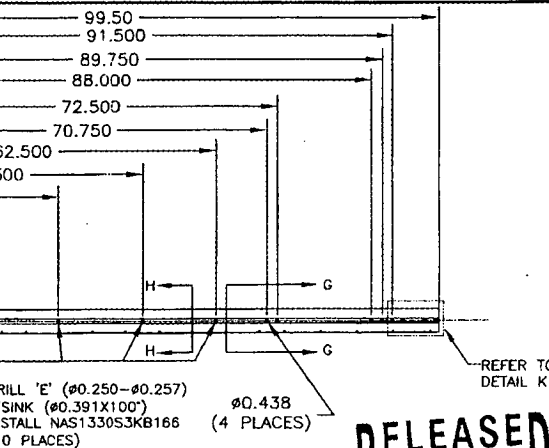
SECTION L-L (SCALE 1:4)



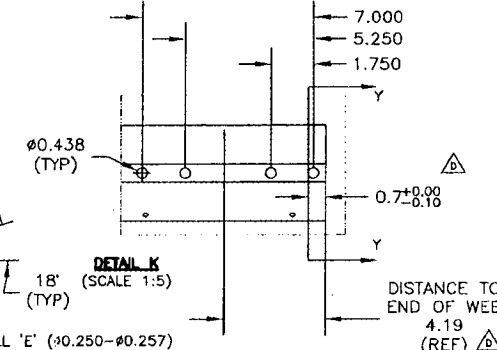
SECTION M-M (SCALE 1:4)



SECTION N-N (SCALE 1:4)

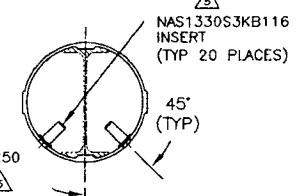


D3391-023 ASSEMBLY DETAIL

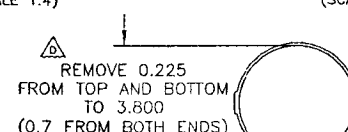


DETAIL K (SCALE 1:5)

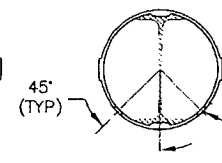
DRILL 'E' (#0.250-#0.257) (TYP 4 PLACES)



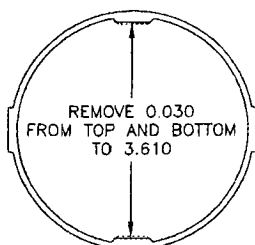
SECTION H-H (SCALE 1:4)



SECTION Y-Y (SCALE 1:4)



SECTION G-G (SCALE 1:4)



SECTION X-X (SCALE 1:2)

D3391-013/-023 MID TUBE ASSEMBLY PARTS LIST

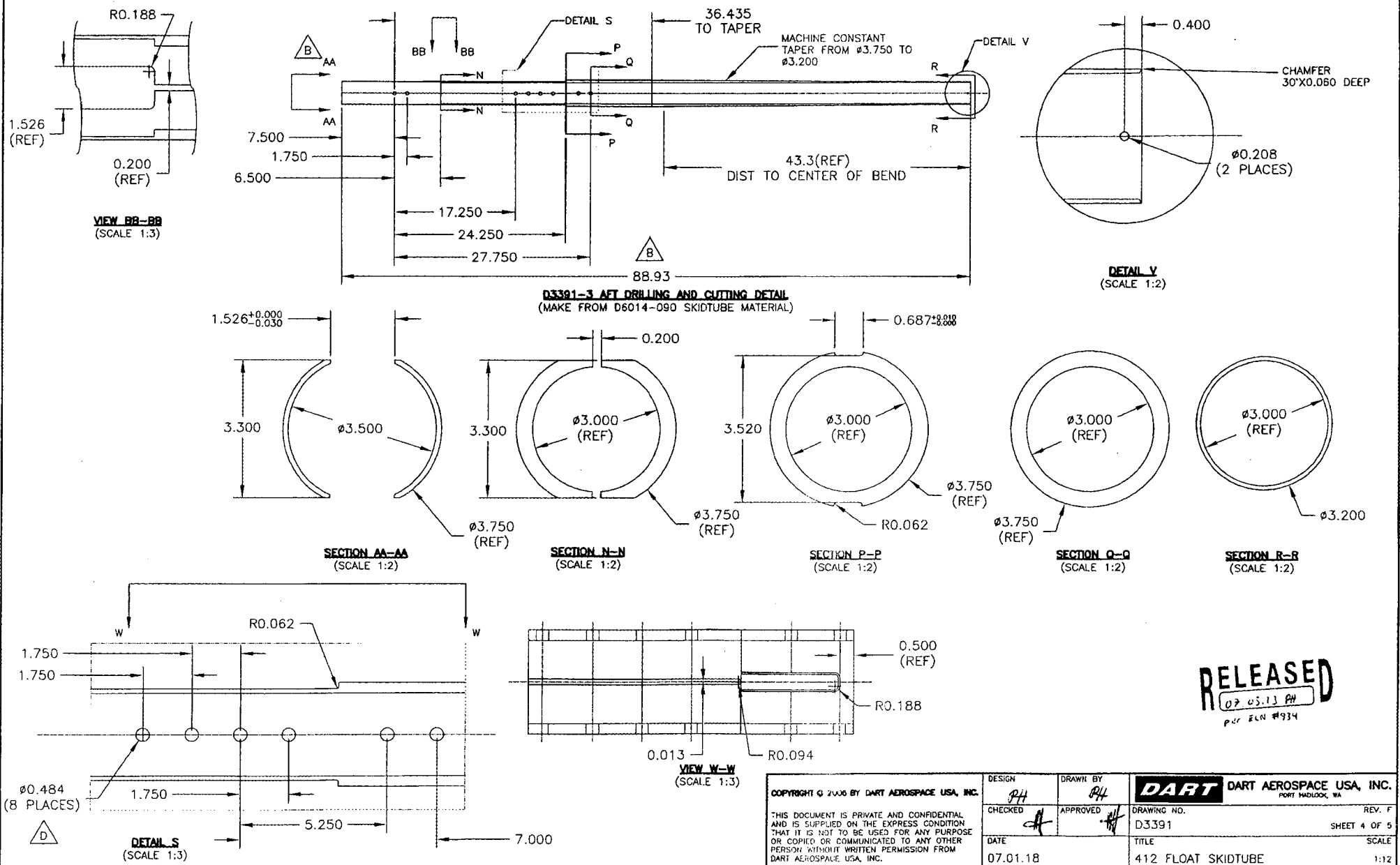
QTY - 013	QTY - 023	PART NUMBER	DESCRIPTION
X	X	D3391-013	MID TUBE ASSEMBLY
		D3391-023	MID TUBE ASSEMBLY
1	1	D2500-1-100	EXTRUSION
1	1	D3389-1	WEB
24	20	NAS1330S3KB116	INSERT (OR NAS1330C3KB116)
24	10	NAS1330S3KB166	INSERT (OR NAS1330C3KB166)
4		NAS1329S4KB140	INSERT (OR NAS1329C3KB140)
4		NAS1515H3L	WASHER
4		AN960C10L	WASHER
4		NAS1515H4L	WASHER
4		AN960C416L	WASHER
4		MS27039C1-09	SCREW
4		MS27039C4-08	SCREW

D3391-013/-023 MID TUBE ASSEMBLY

- 1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
- 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/-291 PER OSI 015

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CHECKED #	APPROVED #	DATE 07.01.18	TITLE 412 FLOAT SKIDTUBE	
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RELEASED
07.03.13 RH
Per E.O. #93-1



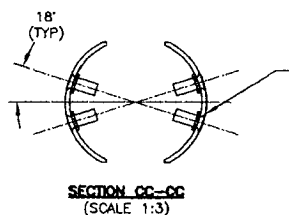
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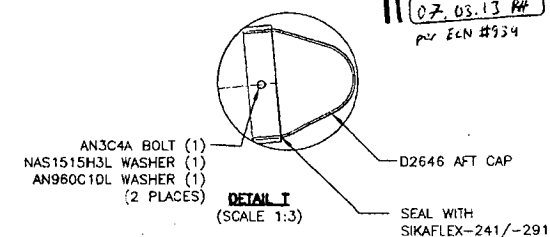
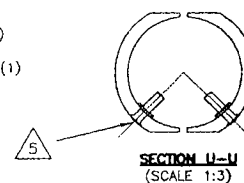
DESIGN PH	DRAWN BY PH	DART DART AEROSPACE USA, INC. PORT HADLOCK, WA	REV. F
CHECKED #	APPROVED #	DRAWING NO. D3391	SHEET 4 OF 5
DATE 07.01.18	TITLE 412 FLOAT SKIDTUBE	SCALE 1:12	



QTY - 015	QTY - 025	PART NUMBER	DESCRIPTION
X		D3391-015	AFT TUBE ASSEMBLY
	X	D3391-025	AFT TUBE ASSEMBLY
1	1	D6014-090	AFT TUBE
1	1	D2646	AFT CAP
1	1	D3537-1	WEARPAD
1	1	D3537-7	WEARPAD
1	1	D3553-1	GASKET
1	1	D3553-3	GASKET
18	14	NAS1330S3KB366	INSERT (OR AES10KB366)
4	2	NAS1330S3KB316	INSERT (OR NAS1330C3KB316)
8	6	NAS1330S3KB266	INSERT (OR NAS1330C3KB266)
4		NAS1330S3KB216	INSERT (OR NAS1330C3KB216)
16	12	NAS1330S3KB166	INSERT (OR NAS1330C3KB166)
4		NAS1330S4KB151	INSERT (OR NAS1330C4KB151)
6	6	AN3CA	BOLT
4	4	AN3CSA	BOLT
2	2	NAS1515H3L	WASHER
10	10	AN960C10L	WASHER



DRILL 'Q' (Ø0.332-Ø0.338)
C'SINK (Ø0.529X100)
NAS1330S4KB151 INSERT (1)
(4 PLACES)



C'SINK AND INSTALL NAS1330S3KBXXX IN HOLES MARKED CS1-CS6 AS FOLLOWS

HOLES MARKED	QTY D3391-015	QTY D3391-025	C/SINK	P/N
CS1	18	14	Ø0.425	NA51330S3KB366
CS2	4		Ø0.391	NA51330S3KB366
CS3	4	2	Ø0.391	NA51330S3KB316
CS4	8	6	Ø0.391	NA51330S3KB266
CS5	4		Ø0.391	NA51330S3KB216
CS6	16	12	Ø0.391	NA51330S3KB166

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DART AEROSPACE USA, INC.

DESIGN

DRAWN BY

CHECKED

APPROVED

DATE	
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07.01.18

DART DART AEROSPACE USA, INC.
PORT HADLOCK, WA

DRAWING NO.

0.3391

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412 FLOAT SKIDTUBE

REY, F

SHEET 5 OF 5

SCALE

1:12

RELEASED
07.03.13 RH
per ECN #934

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☒ **First Article** ☐ **Prototype**

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ml
07/04/02

2A 2B

